

A STUDY ON SERUM CORTISOL AS A PROGNOSTIC FACTOR OF EARLY STROKE OUTCOME

ABSTRACT

INTRODUCTION

It is a well established fact that cerebrovascular accident is an acute stressful event . There is a surge of inflammatory mediators following a stroke . Not much studies have correlated these inflammatory or stress response following stroke with the severity and outcome of stroke.

AIM OF THE STUDY

The aim of our study was to find out any correlation between serum cortisol at the time of admission with the severity of stroke as well as functional outcome at the end of three months . We also tried to correlate serum cortisol with other clinical and paraclinical parameters like blood pressure , total count and admission blood glucose level.

MATERIALS AND METHODS

Study included 50 patients admitted within 24 hours of onset of stroke . Severity of stroke was assessed at admission by Scandinavian stroke scale . Systolic and diastolic blood pressure were recorded in all patients . Blood was taken for total count , random blood glucose and serum cortisol . A single admission cortisol measurement was chosen since the diurnal variation in cortisol secretion is lost in stroke . Functional outcome was assessed by barthel index and modified rankin score at discharge , 1month and at the end of 3 months . Data was plotted in a master chart and statistical analysis was made .

RESULTS AND OBSERVATIONS

The average serum cortisol level was 18.43mcg/dl [reference range 3.09- 16.66mcg/dl] . Serum cortisol level was higher in male patients, patients with hemorrhagic stroke and in those aged above 60 years. Statistically significant correlation was observed between serum cortisol and Scandinavian stroke scale. ($p<0.001$). Patients with higher serum cortisol level at admission had more severe stroke . Serum cortisol also showed significant correlation with indices of functional outcome like barthel index and modified rankin score , indicating poor functional outcome at

the end of three months in patients who had high cortisol values .
A positive correlation was also seen between cortisol and systolic blood pressure, diastolic blood pressure , total count and admission blood glucose level . The highest level of correlation was observed between cortisol and admission blood glucose level , correlation coefficient being 0.748 . All three patients who died had very high cortisol level(>34mcg/dl)

CONCLUSION

High serum cortisol value at admission correlates with severity of stroke. Positive correlation exists between serum cortisol and systolic blood pressure, diastolic blood pressure , total count and random blood glucose at admission. High serum cortisol is a prognostic marker for functional outcome and mortality in stroke .

KEY WORDS

Scandinavian stroke scale , Barthel index , Modified Rankin score , early stroke outcome , serum cortisol